

Julia M. Kreiner
Plant Evolutionary Geneticist
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Academic Positions

Killam Postdoctoral Research Fellow	2021-2023
Bioinformatics BRC Postdoctoral Research Fellow	2021-2024
University of British Columbia, Biodiversity Research Centre	
Supervisors: Dr. Loren Rieseberg & Dr. Sarah P. Otto	

Education

PhD	Ecology & Evolutionary Biology, University of Toronto	2015 - 03/2021
	Title: <i>Population genomics of herbicide resistance and agricultural adaptation</i>	
	Supervisors: Dr. Stephen I. Wright, Dr. John R. Stinchcombe	
	Visiting Researcher, Max Plank Institute for Developmental Biology	2019
	Supervisors: Dr. Detlef Weigel, Dr. Hernán Burbano	
BSc	Honours Biology, University of Guelph	2011 - 2015
	Honours title: <i>Evolutionary dynamics of unreduced gametes</i>	
	Honours supervisor: Dr. Brian C. Husband	

Publications

11. Baucom R, Iriat V, **Kreiner JM**, Yakimowski, S. 2021. Resistance evolution, from genetic mechanisms to ecological context. accepted at *Molecular Ecology*.
10. **Kreiner JM**, Tranel PJ, Weigel D, Stinchcombe JR, & Wright SI. 2021. The genetic architecture and genomic context of glyphosate resistance. *Molecular Ecology*.
9. Martin SL, Parent JS, Laforest M, Page E, **Kreiner JM**, & James J. 2019. Population Genomic Approaches for Weed Science. *Plants*.
8. **Kreiner JM**, Giacomini D, Bemm F, Waithaka B, Regalado J, Lanz C, Hildebrandt J, Sikkema PH, Tranel PJ, Weigel D, Stinchcombe JR, & Wright SI. 2019. Multiple modes of convergent adaptation in the spread of glyphosate-resistant *Amaranthus tuberculatus*. *PNAS*. — Media: [Talking BioTech Podcast] [University of Toronto News]
7. Sobanski J, Giavalisco P, Fischer A, **Kreiner JM**, Walther D, Schttler MA, Pellizzer T, Golczyk H, Obata T, Bock R, Sears BB, & Greiner S. 2019. Chloroplast competition is controlled by lipid biosynthesis in evening primroses. *PNAS*.
6. Kryvokhyzha D, Salcedo A, Eriksson MC, Duan T, Tawari N, Chen J, Guerrina M, **Kreiner JM**, Kent TV, Lagercrantz U, Stinchcombe JR, Glemin S, Wright SI, & Lascoux M. 2019. Parental legacy, demography, and introgression influenced the evolution of the two subgenomes of the tetraploid *Capsella bursa-pastoris* (Brassicaceae). *PLOS Genetics*.

5. **Kreiner JM**, & Wright SI. 2018. (*Perspective*) A less selfish view of genome size evolution in maize. *PLOS Genetics*.
4. **Kreiner JM**, Stinchcombe JR, & Wright SI. 2018. Population genomics of herbicide resistance: adaptation via evolutionary rescue. *Annual Review of Plant Biology*.
3. **Kreiner JM**, Kron P, & Husband BC. 2017. Evolutionary dynamics of unreduced gametes. *Trends in Genetics*.
2. **Kreiner JM**, Kron P, & Husband BC. 2017. Frequency and maintenance of unreduced gametes in natural plant populations: associations with reproductive mode, life history, and genome size. *New Phytologist*.
1. **Kreiner JM**. 2016. (*Digest*) The key to pollen-stigma dimorphisms: Dissecting the functional significance of the heterostylous syndrome. *Evolution*.

Preprints

2. **Kreiner JM**, Caballero, A*, Wright SI, & Stinchcombe JR. 2021. Selective ancestral sorting and *de novo* evolution in the agricultural invasion of *Amaranthus tuberculatus*. [bioRxiv](#) (minor revisions, *Evolution* - 09/27).
(*) Undergraduate co-author
1. **Kreiner JM**, Sandler, G, Stern, AJ, Tranel PJ, Weigel D, Stinchcombe JR, & Wright SI. 2021. Repeated origins, gene flow, and allelic interactions of herbicide resistance mutations in a widespread agricultural weed. [bioRxiv](#) (in revision at *eLife*, public reviews posted - 07/19).

Research Scholarships

2021-2024	Bioinformatics Postdoctoral Fellowship, Biodiversity Research Centre, UBC	\$171,000
2021-2023	Killam Postdoctoral Research Fellowship, University of British Columbia	\$108,000
2020	GM Women in Science and Mathematics Award, University of Toronto	\$4,000
2019	Rosemary Grant Advanced Award, Society for the Study of Evolution	\$4,250
2019	GM Women in Science and Mathematics Award, University of Toronto	\$5,000
2019	Dean's International and Indigenous Initiatives Fund, University of Toronto	\$4,000
2017-2020	Postgraduate Scholarships-Doctoral's (PGS-D), NSERC	\$63,000
2016-2017	Canada Graduate Scholarships-Master's (CGS-M), NSERC	\$17,500
2015	College of Biological Sciences Undergraduate Research Assistantship, UofGuelph	\$5,000
2014	Undergraduate Student Research Award (USRA), NSERC	\$4,500

Awards & Recognitions

2021	Peter Abrams Prize for Sustained PhD Excellence, EEB University of Toronto.	\$1000
2021	Early Career Award, J.F. Crow Institute, UW-Madison.	\$150
2019	DeLill Nasser Award for Professional Development, Genetics Soc. Amer.	\$1000
2019	Golden Buffalo for Best Talk, Great Lakes Evolutionary Genetics Symposium	\$50
2019	Diversity & Excellence in Doctoral Research Award, CSEE	\$1500
2019	Hamilton Award Finalist, SSE	\$500
2019	Walter M. Fitch Prize Finalist, SMBE	\$2,000
2019	Ramsay Wright Prize for PhD Excellence, EEB University of Toronto	\$1,000
2017	Young Investigator Travel Award, SMBE	\$2,000

Invited Seminars

- Kreiner JM.** 2021. Going beyond a reference genome: resequencing to characterize resistance evolution. International Weed Genomics Consortium, First Annual Conference. Kansas City, Missouri. ('Invited speaker' symposium)
- Kreiner JM,** Sandler G, Stern AJ, Tranel PJ, Weigel D, Stinchcombe JR, & Wright SI. 2021. The timescale and allelic interactions of repeated origins of herbicide resistance. University of California Berkeley. (Speciation-Introgression Discussion group)
- Kreiner JM,** Stinchcombe JR, & Wright SI. 2021. The repeatability and genomic architecture of herbicide resistance evolution. Charles University, Prague. (Dept. Seminar)
- Kreiner JM,** Stinchcombe JR, & Wright SI. 2021. Mutational origins, genomic architecture, and selective history of herbicide resistance. University of British Columbia, Biodiversity Research Institute. Vancouver, Canada. (Dept. Seminar)
- Kreiner JM,** Sikkema P, Tranel P, Weigel D, Stinchcombe JR, & Wright SI. 2019. Population genomics of herbicide resistance adaptation. Ecology & Evolutionary Biology Seminar Series, Queens University. Kingston, Ontario, Canada. (Dept. Seminar)
- Kreiner JM,** Weigel D, Stinchcombe JR, & Wright SI. 2019. Demographic and genetic origins of herbicide resistance and agricultural adaptation in *Amaranthus tuberculatus*. Max Planck Institute for Developmental Biology. Tuebingen, Germany. (Dept. Seminar)
- Kreiner JM,** Sikkema P, Tranel P, Weigel D, Stinchcombe JR, & Wright SI. 2018. Deciphering the evolutionary mechanisms driving the spread of glyphosate resistant *Amaranthus tuberculatus*. Canadian Weed Science Society Annual Meeting. Niagara Falls, Ontario, Canada. ('Genomics of herbicide resistance' symposium)
- Kreiner JM,** Sikkema P, Tranel P, Weigel D, Stinchcombe JR, & Wright SI. 2018. Population genetics of the spread of glyphosate-resistant *Amaranthus tuberculatus* into Canada. University of Guelph - Ridgetown Campus, Ontario, Canada. (Dept. Seminar)
- Kreiner JM,** Stinchcombe JR, & Wright SI. 2018. Comparative population genomics of herbicide resistance: mating system, ploidy, and mechanistic patterns of adaptation. PAG XXVI, San Diego, California, USA. ('Weed science' symposium)
- Kreiner JM,** Kron P, & Husband B. 2018. The evolutionary maintenance of unreduced gametes and their role in whole genome duplication. PAG XXVI. San Diego, California, USA. ('Polyploidy' symposium)

Select Presentations

- Kreiner JM**, Stinchcombe JR, & Wright SI. 2021. The repeatability and genomic architecture of herbicide resistance evolution. J.F. Crow Early Career Scientist Seminar Award Series, University of Wisconsin Madison, USA. (Virtual Talk, Dept. Award Series)
- Kreiner JM**, Kron P, Husband BC. 2021. The frequency and maintenance of unreduced gametes & implications for polyploid formation. Polyploidy Webinar, Barker Lab. (Virtual talk)
- Kreiner JM**, Stinchcombe JR, & Wright SI. 2019. Population genomics of herbicide resistance and agricultural adaptation. Canadian Society for Ecology & Evolutionary Biology Annual Meeting. Fredericton, Canada. (Talk, Award Symposium)
- Kreiner JM**, Tranel PJ, Weigel D, Stinchcombe JR, & Wright SI. 2019. Population genomic processes of convergent herbicide resistance adaptation. Society for Molecular Biology & Evolution Annual Meeting. Manchester, UK. (Talk, Walter Fitch Award Symposium)
- Kreiner JM**, Tranel PJ, Weigel D, Stinchcombe JR, & Wright SI. 2019. Patterns & population genomic processes of herbicide resistance and agricultural adaptation. Society for the Study of Evolution Annual Meeting. Providence, Rhode Island, USA. (Talk, Hamilton Award Symposium)
- Kreiner JM**, Giacomini D, Bemm F, Waithaka B, Regalado J, Lanz C, Hildebrandt J, Sikkema PH, Tranel PJ, Weigel D, Stinchcombe JR, & Wright SI. 2019. Population genomics of herbicide resistance and agricultural adaptation in *Amaranthus tuberculatus*. Great Lakes Evolutionary Genetics Symposium. University at Buffalo, Buffalo, New York, USA. (Talk)
- Kreiner JM**, Stinchcombe JR, & Wright SI. 2018. Comparative population genomics of herbicide resistance: mating system, ploidy, and mechanistic patterns of adaptation. II Joint Congress on Evolutionary Biology. Montpellier, France. (Talk)
- Kreiner JM**, Stinchcombe JR, & Wright SI. 2018. Comparative population genomics of herbicide resistance: mating system, ploidy, and mechanistic patterns of adaptation. AGA Wild Quantitative Genetics Symposium, Toronto, Canada. (Poster)
- Kreiner JM**, Stinchcombe JR, & Wright SI. 2017. Population genomics of herbicide resistance and agricultural adaptation in *Capsella bursa-pastoris*. SMCBE. Austin, Texas, USA. (Poster)
- Kreiner JM**, Stinchcombe JR, & Wright SI. 2016. The evolutionary genomics of herbicide resistance in *Capsella bursa-pastoris*. The Allied Genetics Conference, Genetics Society of America. Orlando, Florida, USA. (Poster)
- Kreiner JM**, Kron P, & Husband B. 2015. The role of life history in the evolution of unreduced gametes in Brassicaceae. Ontario Ecology, Ethology, and Evolution Colloquium. York University, Toronto, Ontario, Canada. (Talk)

Teaching Experience

Courses Taught

2020, 2021 **Instructor** Bioinformatics for Evolutionary Biology (BIOL525), UBC

All of the following courses taught at University of Toronto

2020 **Teaching Assistant** Intro to Bioinformatics & Genomics (EEB1450)
 2018, 2019 **Teaching Assistant & Guest Lecturer** Principles of Evolution (EEB318)
 2017, 2019 **Teaching Assistant** Evolutionary Ecology (EEB324)
 2015, 2017 **Teaching Assistant** Adaptation & Biodiversity (BIO120)
 2016 **Teaching Assistant** From Genes to Ecosystems (BIO220)

Mentoring Independent Research Projects

- 2019-2020 Paula Pietraszkiewicz - *Assaying glyphosate herbicide resistance in Amaranthus*
- 2019-2020 Justin To - *Agricultural adaptation of primary dormancy in Amaranthus*
- 2019 Amalia Caballero - *Agricultural adaptation of secondary dormancy in Amaranthus*
- 2018-2019 Solomiya Hnatovksa - *Characterizing transposable element evolution in Amaranthus*
- 2018-2019 Hayley McKay - *Gene expression and rapid agricultural adaptation in Amaranthus*
- 2017-2018 Sotirios Katsuras - *Dose-response to ALS herbicides in Capsella bursa-pastoris*

Community Involvement

Referee *Proceeding of the National Academy of Sciences (3), Molecular Biology and Evolution (2), Evolution Letters, Molecular Ecology, New Phytologist, Heredity, Ecology and Evolution, & Evolutionary Applications*

2021-	Participant International Weed Genomics Consortium Workshop
2020	Participant Racial Microaggressions Workshop, Dept. of EEB, University of Toronto
2020	Participant Workplace Harassment Workshop, Dept. of EEB, University of Toronto
2018-2019	Panelist Mental Health Discussions, Dept. of EEB, University of Toronto
2018-2019	Editor & Writer <i>The EEB Quarterly</i> , University of Toronto
2018-2019	Associate Member & Writer F1000, Faculty of 1000
2018-2019	EGSA Co-president EEB Grad. Student Association, University of Toronto
2018	Organizer Symposium "The Evolution of Resistance", Joint SSE/ESEB, Montpellier
2018	Organizer EEB Plant Evolutionary Genetics Seminar Series, University of Toronto
2017	Judge EEB Undergraduate Thesis Poster Fair, University of Toronto
2017-2018	Organizer , Student Journal Club, University of Toronto
2017-2018	Social Committee EEB Grad. Student Association, University of Toronto
2017	Organizer Evolution Book Club, EEB Grad. Student Association, University of Toronto
2017	Volunteer , EEB Booth at Science Rendezvous, University of Toronto
2016,2017	Planning Committee Atwood Colloquium, University of Toronto
2016-2017	Secretary EEB Grad. Student Association, University of Toronto
2016-2017	Peer Mentor Dept. of EEB, University of Toronto
2016-2017	Panelist Workshop series on applying for an NSERC awards, University of Toronto
2016	Organizer Ontario Ecology, Ethology, and Evolution Colloquium, Toronto
2016	Volunteer Toronto General Hospital, University Health Network